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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/643,550	08/22/2000	Shanna D. Knights	12547US02	9685

7590

08/13/2002

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EXAMINER

WILLS, MONIQUE M

ART UNIT

PAPER NUMBER

1745

DATE MAILED: 08/13/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.		Applicant(s)	
	09/643,550		KNIGHTS ET AL	
	Examiner		Art Unit	
	Wills M Monique		1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 April 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12, 15-19 and 23 is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-11, 13, 14, 20-22, 24-29 and 31-42 is/are rejected.
- 7) ☒ Claim(s) 30 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Response to Amendment

This Office Action is responsive to the Amendment filed April 23, 2002. The rejection of claims 7-19 & 29-30 under 35 U.S.C. 112, second paragraph is overcome. Claims 12, 15-19 and 23 are allowed. However, claim 30 remains objected. The rejection of claims 1, 3-6, 8-11, 13, 14, 20-22, 33-34 & 40-42 under 35 U.S.C. 102(a) as being anticipated by Narayanan et al. U.S. Patent 5,945,231 is maintained. The rejection of claims 1-3, 24, 25, 28 & 31-42 under 35 U.S.C. 102(e) as being anticipated by Narayanan et al. U.S. Patent 6,171,721 B1 is also maintained. The rejection of claims 26, 27 & 29 under 35 U.S.C. 103(a) is maintained. Claims 10, 11, 13, 14, 20, 22, 41 & 42 are rejected under 35 U.S.C. 112, second paragraph. Claim 7 has been cancelled by Applicants request. A brief reiteration of the maintained rejections is recited below.

Claim Rejections – 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1, 3-6, 8-11, 13, 14, 20-22, 33-34 & 40-42 are rejected under 35 U.S.C. 102(a) as being anticipated by Narayanan et al. U.S. Patent 5,945,231.

Narayanan teaches a solid polymer electrolyte fuel cell comprising an anode **120**, cathode **130** (fig. 1). The anode comprises a platinum/ruthenium alloy catalyst for evolving protons from a hydrogen fuel (col. 3 lines 30-35). The cathode comprises a Pt-RuO₂ Zeolite catalyst (col. 9 lines 25 & 26) or Pt-RuO₂-ZrO₂ catalyst for evolving oxygen from water (col. 9 lines 35-45 & col. 10 lines 20-25). Each catalyst is supported by an electrically conductive carbon support (col. 5 lines 65-67).

The reference does not expressly disclose an improved tolerance to voltage reversal. However, it is reasonable to expect the reversal of Narayanan to inherently be improved because the fuel cell and materials employed are equivalent to that of the subject invention. Therefore, the instant claims are anticipated by Narayanan.

Claim Rejections – 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

Claims 1-3, 24 25, 28, 31-42 are rejected under 35 U.S.C. 102(e) as being anticipated by Narayanan et al. U.S. Patent 6,171,721 B1.

Narayanan teaches a method of making a solid polymer electrolyte fuel cell (col. 3 lines 60-68). The fuel cell contains an anode and cathode (col. 2 lines 35-60). The

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anode material contains a catalyst that is sputter-deposited as layers (col. 2 lines 55-60). The catalyst includes mixtures of two or more catalyst (col. 2 lines 50-55). The catalyst can be selected from platinum and ruthenium mixture (col. 65-68). The catalyst may be coated on carbon backing paper (col. 2 lines 35-40). Each catalyst may be coated as a mixture forming one layer or separate layers creating a bi-layer anode (col 5 lines 60-68 & col. 6 lines 1-8).

The reference does not expressly disclose an improved tolerance to voltage reversal. However, it is reasonable to expect the reversal of Narayanan to inherently be improved because the fuel cell and materials employed are equivalent to that of the subject invention. Therefore, the instant claims are anticipated by Narayanan.

Claim Rejections – 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 26,27 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Narayanan et al. U.S. Patent 6,171,721 B1, as applied to claim 1 and 3 above.

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Narayanan teaches a method of making a solid polymer electrolyte fuel cell (col. 3 lines 60-68). The fuel cell contains an anode and cathode (col. 2 lines 35-60). The anode material contains a catalyst that is sputter-deposited as layers (col. 2 lines 55-60). The catalyst includes mixtures of two or more catalyst (col. 2 lines 50-55). The catalyst can be selected from platinum and ruthenium mixture (col. 65-68). The catalyst may be coated on carbon backing paper (col. 2 lines 35-40). Each catalyst may be coated as a mixture forming one layer or separate layers creating a bi-layer anode (col. 5 lines 60-68 & col. 6 lines 1-8).

The reference does not expressly disclose a second catalyst composition supported on a second electrically conductive carbon support.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ an additional backing support to increase structural integrity of the electrode.

Allowable Subject Matter

Claims 12,15-19, 23 are allowed. The instant claims are allowable over the prior art of record, because the prior art is silent to an anode having improved tolerance to voltage reversal comprising a first and second catalyst, wherein the second catalyst includes $\text{RuO}_2/\text{IrO}_2$ (claim 12) or $\text{RuO}_2/\text{TiO}_2$ (claims 15-19 & 23).

Claim 30 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the

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base claim and any intervening claims. The prior art is silent to a titanium oxide composition supported on a second electrically conductive carbon support (claim 30).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 10, 11, 13, 14, 20, 22, 41 & 42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The instant claims are incomplete as they are dependent on cancelled claim 7.

Response to Argument

The Applicant asserts that Narayanan '231 does not anticipate the instant anode, because Pt-RuO₂ Zeolite catalyst taught by the reference is specifically for the cathode. This argument is not persuasive. The reference teaches that Pt-Ru and Pt-RuO₂ are equivalent catalysts (col. 10, lines 63-68) and that Zeolites can be incorporated into Pt:Ru catalysts. Furthermore, the reference does not make a distinction in which electrode this materials can be used. Therefore, it may reasonably be concluded that the Zeolite catalyst may be used for either electrode.

With regard to claim 33, the Applicant contends that the reference does not anticipate said claim because it is silent to gaseous hydrogen. This argument is not

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persuasive. The reference teaches the employment of the catalyst in hydrogen fuel cells. The fuel cells operate at least room temperature (per the liquid water removal in col. 12, lines 10-30). Therefore, hydrogen fuel is inherently in the gaseous phase.

Furthermore, hydrogen is the fuel the claimed anode is used with. In other words, the hydrogen gas is a recitation of intended use. However, in apparatus, article, and composition claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963) In the instant case, the limitations do not provide a structural difference between the anodic catalyst of the art and the subject invention.

Conclusions

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Monique Wills whose telephone number is (703) 305-0073. The Examiner can normally be reached on Monday-Friday from 8:30am to 5:00 pm.


Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.

If attempts to reach Examiner by telephone are unsuccessful, the Examiner's supervisor, Patrick Ryan, may be reached at 703-308-2383.

The unofficial fax number is (703) 305-3599. The Official fax number for non-final amendments is 703-872-9310. The Official fax number for after final amendments is 703-872-9311.

Mw

08/07/02


STEPHEN KALAFUT
PRIMARY EXAMINER
GROUP 1700